ABSTRACT OF THE DISCLOSURE

A misfire detector calculates the engine speed fluctuation quantity $\Delta\omega n$ for a predetermined period of time on the basis of the average engine speed ωn, which is the reciprocal of the time $T120n$ that the crankshaft of the engine takes to turn 120 degrees. By compa ring the calculated engine speed fluctuation quantity $\Delta\omega n$ with a misfire determination value REF, from which it can be determined whether the engine is misfiring, the misfire detector determines whether the engine is misfiring. The misfire detector detects the rotational fluctuation per combustion stroke of each engine cylinder and learns the variation of the detected rotational fluctuation values during normal combustion. From this learned value and the detected rotational fluctuation value per combustion stroke of the cylinder, the misfire detector determines whether the cylinder is misfiring or not.